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Luck or rights? An experiment on preferences for redistribution following inheritance of opportunity

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ABSTRACT

We conducted an experiment to examine whether individuals are more likely to support the redistribution of income stemming from the inequality of inherited opportunities. Specifically, we randomly and anonymously paired two strangers in a lab setting to determine whether the source of the opportunity from the 'testator' subjects influences the 'heir' subjects' redistributive decisions. We find that, on average, the highest level of redistribution occurs among heirs who received their winning opportunity through pure luck. This result, which is robust to controlling for personal characteristics and ex-ante transfer, supports the meritocratic fairness hypothesis, which posits that individuals generally perceive endowment generated by luck as less deserving than by effort. However, we discovered that redistribution is, on average, similar between subjects who won through their own efforts and those who won because of having inherited someone else's effort. This is in line with the 'inheritance entitlement hypothesis', which suggests an internalization of inheritance when the narrative of effort is passed down from the testator to the heir. Thus, our results suggest that people feel less entitled to bequests and inheritance when the randomness of inheritance is made more salient to them.

1. Introduction

Previous studies on fairness suggest people judge inequality as more acceptable if it was or, at least, was perceived to be the outcome of effort and not luck (e.g., Piketty, 1998; Rawls, 1971; Anderson, 1999; Konow, 2000; Erkal, Gangadharan & Nikiforakis, 2011; Starmans, Sheskin & Bloom, 2017). One reason for this is that people generally have preferences for meritocratic fairness, thus making them more willing to redistribute income from pure luck rather than income earned through effort (e.g., Almås, Cappelen & Tungodden, 2020; Cappelen, Hole, Sørensen & Tungodden, 2007; Krawczyk, 2010; Lefgren, Sims & Stoddard, 2016; Mollerstrom, Reme & Sørensen, 2015).[1] It also explains why there is a significant variation in the support for redistributive policies in countries with normative differences in the beliefs about luck and effort in determining people's economic status.[2]

Based on a meritocratic fairness view, the intergenerational transmission of economic opportunity and status, essentially an outcome of a random assignment at birth, should be considered an unfair process. Consequently, individuals who subscribe to this view would favor higher generosity of redistributive policies (Alesina, Stantcheva & Teso, 2018; Bowles & Gintis, 2002). Specifically, people behaving according to the *meritocratic fairness hypothesis* would be more willing to redistribute

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[1] Liberal egalitarianism views and justifies unequal distribution of success or failure according to the extent to which individuals can exercise their control over the situation. Cappelen et al. (2007), Fong (2001), and Alesina and La Ferrara (2005) show that people perceive the process of distribution as fair when the factors determining such outcomes arise from individual control, for instance, skill, talent and effort. Cappelen et al. (2013) investigate the role of ex-ante risk and ex-post risk on redistribution considerations in dictator games.

[2] For example, Americans are generally more accepting of inequality than Europeans because most Americans believe that bad choices or laziness cause poverty and that hard work is the only key to success. In contrast, most Europeans believe that luck plays a much more significant role in determining income distribution in their society (see, for instance, Alesina et al., 2001, 2004, Powdthavee et al. 2017, Almås et al. 2020). Fairness considerations are also used to explain the positive correlation between a country's level of social welfare spending and the average belief that luck determines income among their citizens (Alesina and Angeletos 2005). The difference in sources of earnings (luck versus merit) can explain the delayed satisfaction that individuals derived from a positive shock in their unearned incomes (Winkelmann et al. 2011, Apouey and Clark 2015). See Cappalen *et al.* (2020) for an extensive review of the recent literature.

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inherited wealth and economic opportunity than the redistribution of other possessions they have earned through hard work and effort.

Yet, the unpopularity of inheritance tax in many countries suggests the contrary that people generally perceive the handing down of wealth and opportunity as more acceptable than unfair. This view that some people relate inheritance to own effort instead of pure luck can be considered as a prediction of the *inheritance entitlement hypothesis*. Its key prediction is that due to the sense of entitlement that heirs ascribe to their inheritance, they would be less willing to redistribute their inherited reward than a reward gained through pure luck. In contrast, their redistribution may be much closer to how one would redistribute a reward from the actual effort.

Recent works have lent some insights into the potential mechanisms shaping fairness acceptance on intergenerational transfers of wealth and income. First, people's judgment of whether income is fair is determined partly by the sources of wealth (saving or inheritance) (Fisman, Gladstone, Kuziemko & Naidu, 2020). People may judge inheritance as fair if they perceive that hard work of their parents went into generating that wealth. Second, fairness ideals may differ by the relative weights the decision-makers assign to the welfare of each relevant stakeholder (testators or heirs) (Stantcheva, 2021). In other words, inheritance tax may be viewed by spectators (respondents in the survey) as more acceptable when it can be justified as a way to reduce inequality in the heirs' generation.[3]

While these are important channels, very little is understood about whether people feel less entitled to the wealth and opportunity inherited from the previous generation. It is not straightforward to empirically test the extent to which the meritocratic fairness hypothesis holds regarding redistributive decisions on bequests and inheritance. Administrative data on bequests and inheritance are often not easily accessible. Even when they are, we cannot explicitly test whether redistributive decisions of inheritance are driven by how inheritance is generated – particularly by luck or efforts. Hence, it seems desirable to exploit an experimental setting to investigate whether people generally perceive the *inheritance of opportunity* (the likelihood of being a *winner* in a situation) as unfair and, subsequently, would be more willing to redistribute their reward. Another advantage of a lab experiment is that it is possible to clarify the sources of their inherited opportunity to the subjects and observe their distributive decisions with real-stake payoffs. Our specific focus on the opportunity (probability) rather than the outcome (deterministic) is motivated by the fact that real-life inheritance includes not only wealth that gets passed down from generation to generation, but also non-pecuniary legacies such as family names and social connections that provide the heirs with better opportunities in life in general (Atkinson, 2015; Chetty, Hendren & Katz, 2016).

In this paper, we conducted lab experiments with participants from two Asian countries: Singapore and Thailand. In our experiments, participants were randomised into conditions where opportunity to succeed in the game is generated (i) by own effort (Testator/ Effort); (ii) by own luck (Testator/ Luck); (iii) by the effort of a random testator (Heir/ Effort); and (iv) by the luck of a random testator (Heir/Luck).

The filial relationship between a testator and an heir in the game is artificially induced by including another step that allows each testator to communicate passively with their heir. Without knowing the identity of their heir, the testator was asked to leave some messages for them either on screen or paper. We expected this additional step to trigger some degree of relationship of the heir who received the messages with their paired testator and, subsequently, a sense of entitlement to the endowment opportunity that the participants in (iii) and (iv), in fact, randomly acquired.

Our predictions regarding the redistributive decisions of our participants are the following. Based on the *meritocratic fairness* hypothesis, we expect the dictators' redistribution in the own-effort variation (T/E) to be smaller than those in the own-luck (T/L). Also, a random assignment of their *inherited* opportunity should lead participants in the heir variations (H/E and H/L) to redistribute no less than the dictators in the own-luck design (T/L). Given that inheritance is luck-based, the meritocratic fairness hypothesis also predicts that the heirs who inherited their opportunity from a lucky testator (H/L) may redistribute, on average, the most among the conditions.

By contrast, the *inheritance entitlement* hypothesis assumes that heirs with this ideal will internalize their randomly assigned inheritance and feel entitled to it. Therefore, it predicts that the redistribution by those in H/E and H/L variations would be *less* than T/L. And suppose the heirs fully internalize the action of their testators as their own, it is possible to observe that, on average, the redistribution by the dictators in the H/E condition is as low as the T/E condition. Moreover, considering that inheritance taxation in Thailand and Singapore is limited, the inheritance entitlement hypothesis may be more prevalent among our participants.[4]

Overall, we find evidence that lends support to the meritocratic fairness hypothesis. Dictators who were explicitly informed that their winning opportunity was inherited from their testator's luck (H/L) redistributed their rewards significantly more than the participants in a pure effort variation (T/E). Additionally, our participants differentiated their redistributive decisions between the scenarios when the winning opportunity was due to their own or inherited effort. There is also evidence that the heirs redistributed rewards from inherited luck more generously than those in the pure luck scenario. Nonetheless, since dictators in the H/E variation do not redistribute any more than those in the T/L, we have evidence to suggest that people may have considered both H/E and T/L as similarly luck-based. More generally, our results highlight the importance of context, or narrative framing, regarding the nature of inheritance and its effect on people's willingness to redistribute.

This paper is outlined as follows. Section 2 briefly discusses the background literature. Section 3 describes the experimental design and main hypotheses. The empirical strategy is outlined in Section 4. Section 5 presents the results, and Section 6 provides further discussion and concludes.

2. Background

There is a longstanding finding in economics, in support of the meritocratic fairness ideal, that people generally treat earned income and windfall differently. Early evidence from laboratory experiments documents that people treat inequality that arises from individuals' differences in achievement as fair (Konow, 2000; List, 2007). Cappelen et al. (2007) show that when all determining factors are identified as within or beyond individual control, the subjects in their experiment decide to hold individuals responsible only for outcomes produced by factors within their control. In an experiment where subjects were assigned different probabilities of becoming a dictator, the average transfers were higher in the treatments where the probability was determined by luck rather than by effort (Krawczyk, 2010). Similar observations supporting inequality acceptance under the meritocratic hypothesis have also been obtained across different experimental setups

[3] The survey evidence of the US sample in Stantcheva (2021) shows that nearly two-thirds of respondents believe it is unfair to tax the estate of wealthy parents who worked hard to accumulate their wealth; while nearly half believe it is unfair to allow for further intergenerational transfer if the wealth is itself inherited.

[4] Singapore abolished inheritance tax on any death occurred after 15 Feb 2008. For Thailand, the inheritance tax is at 5% (if the heir is the legal heir) with the minimum allowance threshold of 100,000,000 Thai Baht (equivalent of 3 million USD). For comparison, inheritance tax is 26% for the OECD average (among countries with non-zero taxation), 55 % in Japan, 50 % in South Korea, and 40% in the UK (OECD 2021).

(e.g., Becker, 2013; Erkal et al., 2011; Mollerstrom et al., 2015). The findings of these studies highlight procedural fairness's vital role in influencing people's attitudes toward income redistribution.

A common feature of previous studies in this area is the high salience of effort versus luck in the production stage (Cappelen, Nielsen, Sørensen, Tungodden & Tyran, 2013; Gee, Migueis & Parsa, 2017; Lefgren et al., 2016). Participants could tell immediately whether effort or luck generated their endowment, income, or chances of winning.

However, we know very little from previous research about how people perceive the nature of inheritance. From the perspectives of bystanders and heirs, do they feel that handing down income and economic opportunity is unfair, even if the stakes are small? Or might they think, based on the inheritance hypothesis, that the inheritance of financial status and the intergenerational persistence of inequality that comes with it is acceptable or justified?

Recent empirical evidence from general surveys on inheritance tax is suggestive that most people feel more entitled to their inherited economic status than predicted by the meritocratic hypothesis. For example, many studies have shown that inheritance and gift taxes are among the least popular taxes among the general public. From a survey experiment with vignettes of multiple factors and no real stake, Gross, Lorek and Richter (2017) find their subjects less receptive to inheritance tax the closer the familial relationship between the testator and the heir is. As a consequence, what drives people to feel more rather than less entitled to their inheritance when inheritance is, in fact, an outcome of luck instead of effort? One possible explanation is that people might justify the inheritance of wealth or economic opportunity as a kin investment necessary to pass down their parents' genes (Smith, Kish & Crawford, 1987). We call this possible explanation a prediction of the inheritance hypothesis. Likewise, from the heir's viewpoint, they may not see inheritance as an external factor beyond their control because they have often shared a significant proportion of their lives with their parents (Cappelen et al., 2007).[5] It is also possible that people see inheritance as something they had earned through hard work and effort, even though many of their successes resulted from having won the genetic lottery (Hauskeller, 2016).

Another explanation is that people are unaware of the importance of luck in the intergenerational transmission of economic success. By randomly raising people's awareness about the importance of inheritance tax in a Swedish survey, Bastani and Waldenstrom (2021) were able to alter people's views on whether luck matters most for economic success and, consequently, increased the average support for inheritance tax among the treated group compared to the control group who did not receive the same information. Related results from Fisman et al. (2020) and Stantcheva (2021) point out that when the source of wealth is an inheritance, the support for estate taxation is higher. Their results suggest that the low salience of the process with which inherited wealth is generated might be one of the reasons inheritance taxation is growing out of favor with residents in developed countries.

Despite the growing interest in this topic, the economic literature on the relationship between inheritance and fairness perceptions remains heavily understudied (Stantcheva, 2021). To the best of our knowledge, studies that address this question using real-stake decisions remain scarce; one of the few exceptions is Freyer & Günther (2022). Using an impartial spectator design with online US adults, they find a positive effect when effort is the source of income. However, they do not see a differential effect between their effort or the effort made by a close friend. Our empirical design seeks to provide further insights into whether making the randomness of inheritance more salient, particularly when the dictator is also subjected to self-interest, would decrease the heir's feeling of entitlement to the inherited economic opportunity and therefore cause them to redistribute more of their final reward. Through a series of lab experiments with a small but real monetary stake outlined in the next section, we test this hypothesis and other implications of how the inheritance was generated on people's subsequent redistributive behavior.

[5] To illustrate this point, consider a dutiful child who has dedicated considerable effort and care for years caring for his (her) aging parents. It is easy to imagine that he or she might feel deeply connected to the parents and view the inheritance from the parents as unrelated to luck.

3. Experimental design and main hypotheses

3.1. Experimental design

We conducted a laboratory experiment with a modified dictator game in a group setting consisting of production and redistribution stages. The experiment was computerised using z-tree (Fischbacher, 2007).[6] Before entering the production stage, we asked each participant to respond to a hypothetical question about their preferences for a winner's redistribution in the dictator game with four members in each group (see Appendix B for details). The question specifically asked how much they thought the anonymous winner would transfer, out of 100 tokens, to non-winners. This non-incentivised stage, which resembles a variation of a spectator game (Cappelen et al., 2013), intends to capture their ex-ante redistributive preference, which is unconditional on their winning status and on the sources of inequality of opportunity that we would introduce next in the game. Note that the measure differs from the revealed preferences towards redistribution that we will elicit in the next step of the game, where the decisions are binding.

The production stage randomised participants into one of the four treatment groups. Each participant was assigned a winning opportunity (WO hereafter) according to the treatment she/he was randomised into. Their WO remained fixed for the entire experiment. Notably, the emphasis on the WO and how the WO was assigned are crucial components of our design. First, our study examines people's perception of the inheritance of opportunity in terms of fairness and entitlement and how it results in a redistributive decision. Therefore, using WO in the experiment implies that certain members stand a better chance of becoming a winner in a dictator game in the redistribution stage (as they have higher WO). Still, WO does not guarantee the eventual winning. Subsequently, participants in our design would inherit a relatively better or worse opportunity to succeed instead of a straightforward financial endowment. We acknowledge that this approach may appear unusual to model inheritance.[7] However, since much of inequality throughout a human's life course is inherited (either directly with bequests or indirectly through genetic or physical endowments) (Atkinson, 2015; Chetty et al., 2016), we believe that our design mirrors one of the key characteristics of inheritance that fuels inequality in the real world.

Specifically, the four treatment groups are:

(i.) Testator/Effort (T/E)
(ii.) Testator/Luck (T/L)
(iii.) Heir/Effort (H/E)
(iv.) Heir/Luck (H/L)

[6] See Appendix Figure B.1 for the illustration of the steps of the game.

[7] An alternative inheritance design is to allow testators to give money directly to our heirs. In this case, being a winner is a sure thing. But we wanted to add some uncertainty to the game. Readers interested in some results on redistributive decisions on inherited money, please refer to Freyer and Gunther (2022). They find that there is a real difference in the redistribution made by spectator dictators between inequality induced by effort and luck. Secondly, within the source of inequality (effort vs luck), there is no difference in redistribution between the types (non-inherited vs inherited).

In the T/E treatment, our participants played a slider task developed by Gill and Prowse (2019).[8] The task was also a computer-based game on z-Tree. Participants had to put the cursor to the designated position on a screen as often as possible for 10 min. Participants in the T/E treatment were made aware from the beginning that the results of their performance in the slider game would result in their eventual WO in that their relative performance – compared to other subjects in the same session – would directly determine their chance of being a winner once the experiment continued to the following stages. The bottom 25% was assigned WO = 0.2, and the subsequent quartiles were assigned WO = 0.4, 0.6, and 0.8, respectively.

In contrast, the participants in the T/L treatment were randomly assigned their WO by a computer program. Comparing the experimental design in the T/E and T/L treatments thus allows us to test the fairness-inequality acceptance hypothesis *intra*-generationally, as has been done in the literature. With a certain probability, a subject with a high WO may not become a winner and vice versa. We refer to the participants in the T/E and T/E as *testators*.

To examine the role of inheritance on redistributive behavior, we designed the H/E and H/L treatments to simulate the essential characteristic of inheritance: the intergenerational transmission of economic opportunity in the production stage. We refer to the participants of the H/E and H/L designs as *heirs*. In this production stage, each heir participant in the H/E treatment is matched with a random testator participant from the T/E treatment. Analogously, each heir in the H/L treatment is matched with a random testator from the T/L treatment. This process enabled us to construct an environment where the WO of each participant in the H/E and H/L was essentially determined by pure luck through a random pairing. The crucial difference between both heir treatments is that the random WO is passed on from their testator, whose WO is acquired by chance (T/L) or effort (T/E).

Importantly, each matched pair took part in an isolated session and did not directly influence each other's decisions. They were also not aware of each other's actions in the game. This design element intends to minimize a positive welfare weight concerning the testators if the participants consider the entitlement of inheritance from the viewpoint of the testators (Stantcheva, 2021). Therefore, we assume that such welfare weight is zero in interpreting our results. Another limitation of our experimental design is that participants from the testator and the heir treatments were genetically unrelated strangers rather than members of the same family.

To induce their artificial filial attachment, we implemented a two-step procedure to make the filial relationship more salient. More specifically, we asked participants in the T/L and T/E to leave participants in the H/L and H/E two sets of notes: (i) a predetermined comment/encouragement note on z-Tree, and (ii) a written personalised message on a piece of paper.[9] The paired-up participants in the H/L and H/E treatments would receive the notes at the start of the production stage. If the design can generate a sufficiently strong sense of connection, we expect to observe significant evidence of entitled behaviours in the redistributive decisions of our heir participants. Moreover, to further induce a more salient relationship structure between the testator (older) and the heir (younger) in a matched pair, we intentionally recruited participants from slightly older ages (upper-year undergraduates, Years 3 and 4) to the testator treatments and marginally younger participants (lower-year undergraduate, Years 1 or 2) to the heir treatments.[10] Additional details of our experiment are the following. To generate different within-group dispersion of WO, we allowed four WOs (0.2, 0.4, 0.6, and 0.8). An equal number of subjects were assigned to each level of WO. The matching algorithm was conditionally randomised so that the sum of the WO of a matched group equals two (Krawczyk, 2010).[11]

Subsequently, at the redistribution stage, we let our participants play a modified dictator game (stakeholder version) in a group of 4 members. The group membership was re-assigned in each round of ten redistribution stages. A computer randomly selected the winner of the group, with the probability of being chosen based directly on each individual's WO. We asked the winner to redistribute a fixed endowment of 100 experimental tokens (ET) between herself and the rest. A new winner was chosen in each round to make the distribution decision. The winner's redistributive choice would determine the actual payment to each group member. Simultaneously, we also asked the non-winners in each round to state how much they would have liked the winner's transfer to them. In the final round, we additionally elicited non-winners' satisfaction with the actual transferred amount as we revealed the redistribution outcomes at the end.

At the end of each experiment session, a computer drew a number at random to determine the round from which the distribution decision would be used to calculate the final payment. A winner earned (100 – *transfer*) experimental tokens, while each non-winner earned (*transfer*/3) experimental tokens. In each round, participants knew whether or not she was a winner. The amount redistributed was known only to the winners but was not revealed to the non-winners in rounds 1 to 9. However, at the end of round 10, the round's redistributive outcome was revealed to all players. The purpose of the modification in the final round is to subsequently elicit the satisfaction of the non-winners, given the amount of redistribution received. The total earnings from the experiment were the experiment payment plus a show-up fee.

We ran the experiment in two locations: (i) at the center for behavioral and experimental economics (CBEE) laboratory at Chulalongkorn University (Bangkok, Thailand) in February and March 2018 with 321 subjects and (ii) at the Behavioral and Experimental Economics Laboratory (BeeEconLab) at Nanyang Technical University (Singapore) in October 2018 with 158 subjects. At both locations, subjects were

[8] The Slider Game is preferred here as it is shown to highly reflect effort and less of other unobservable cognitive abilities or traits of the players (Gill & Prowse, 2019, 2016).

[9] Around 60 percent of the personalised messages included words of encouragement e.g., "you can do it"; "do your best"; or "enjoy the game", around 50 percent contained some guidance on how to best play the game, for example, "be nice"; "read the instruction carefully"; "I apologise that we have only a small chance to win". Overall, more than half of the messages expressed a positive sentiment from the senders whilst the other half was written in a neutral tone.

[10] One valid concern regarding the age difference among our participants in the testator and heir treatments is that age could influence their preference and decision-making in the game. To address this, we show in Appendix Table A.2 that within narrowly defined age groups (our participants are in their early twenties), we cannot detect age effects when we regress a series of proxies for fairness and pro-social preferences with age dummies. The dependent variables are derived from both within-experiment outcome (i.e., the elicited ex-ante redistributive preference) and also external survey data – the Global Preferences Survey (Falk et al. 2018).

[11] Being endowed with 0.2 is simply perceived as a relatively low winning opportunity whereas the endowment of 0.8 is suggestive of a high chance of success when subjects would *compete* among their group's members to win the reward. The sum of 2 generated three different groups of WO distributions that ranged from more to fewer equal groups but with the same mean (0.5), i.e., (0.4,0.4,0.6,0.6), (0.2,0.4,0.6,0.8), and (0.2,0.2,0.8,0.8). In practice, we elaborated in the instruction that the sum of WO (2) was equivalent to the total of virtue lucky balls (20) in a bag. For instance, a subject with a WO of 0.2 would be equivalent to having two lucky balls of hers in that bag. We communicated in the instruction explicitly that this WO is equivalent to the probability of their name getting chosen of 2/20 or 10 percent.

recruited from each laboratory's subject pool.[12] There were 16 experimental sessions in total. Thus, we have 479 subjects who participated in our experiments conducted in Bangkok (a developing country) and Singapore (a developed country). Overall, our sample consists of 63% female, 48.1% majored in economics or business, and the average age was 21.6 years old. (See Appendix Table A.1 provides further breakdowns of the characteristics of participants by location and treatment design.) On average, participants were rewarded around 275 THB (Bangkok, equivalent to 8 USD) and 13.5 SGD (Singapore, equivalent to 19.6 USD), including a fixed show-up fee for their participation in a session that lasted 60 min.[13]

3.2. Meritocratic fairness and inheritance entitlement hypotheses

Meritocratic Fairness Hypothesis: The central premise of this hypothesis is that individuals with meritocratic ideals would redistribute luck-based rewards more than effort-based rewards. As effort and luck are explicitly displayed in the testator's conditions, we can expect $R_{T/E} < R_{T/L}$. Since (i) effort is salient in the T/E treatment and (ii) there are some random components in other conditions, $R_{T/E}$ is predicted to be the lowest among all variations. Moreover, given that T/L and H/E consist of some random factors, the average redistributions across these two conditions are not expected to be statistically significantly different from each other. Finally, the average redistribution among participants in the H/L condition, which combines both the luck of the testator and the random assignment of the inherited opportunity, is predicted to be the largest of all k. Taken together, we have the following predictions:

H1: the relative size of the winner's redistribution to be: $R_{T/E} \leq R_{T/L} \approx R_{H/E} \leq R_{H/L}$
H2: If the non-winners follow the same fairness ideal, we can predict the relative size of their demand for redistribution to be: $D_{T/E} \leq D_{T/L} \approx D_{H/E} \leq D_{H/L}$.

Inheritance Entitlement Hypothesis: Despite being luck-based, individuals with this ideal will internalize inheritance and, in turn, feel entitled to it. This yields the following predictions. Since luck is a directly observed component in the T/L condition, while some wiggle room exists for the internalization of the inherited opportunity in other conditions, $R_{T/L}$ is predicted to be the largest among all k. On the other hand, the average redistributions are predicted to be similar across T/E, H/E and H/L conditions. If the heirs in the H/E condition can internalize the efforts of their testator as their own, then $R_{H/E}$ may be as small as $R_{T/E}$, which would also imply that $R_{H/E}$ and $R_{T/E}$ will be lower than $R_{H/L}$. As a result, we have the following predictions:

H3: The inheritance entitlement hypothesis predicts the relative size of the winner's redistribution to be: $R_{T/E} \approx R_{H/E} \leq R_{H/L} \leq R_{T/L}$.
H4: If the non-winners follow the same entitlement ideal, we can predict the relative size of their demand for redistribution to be: $D_{T/E} \approx D_{H/E} \leq D_{H/L} \leq D_{T/L}$.

4. Empirical strategy

Our principal analysis involves modeling the winner's decision to redistribute their winning to the rest of the group as a function of experimental conditions and personal characteristics. Since we are interested in estimating separately the effects of luck and inheritance on winner's redistribution, we estimate the following regression equation on the sample of winners:

$$R_{i,n} = \beta_0 + \beta_1 L_i + \beta_2 H_i + \beta_3 (L_i\ H_i) + \gamma WO_i + \rho INEQ_{i,n} + \pi\ ANTE_i + X_i^{'}\tau + \varepsilon_{i,n} \quad (1)$$

where $R_{i,n}$ denotes the amount (0–100) allocated by the winner, i, to the rest of the group in round n; L_i is an indicator variable that takes a value of 1 if the participant was randomly assigned to one of the luck treatments (T/L and H/L) and 0 otherwise (T/E and H/E); H_i takes the value [[parms resize(1),pos(50,50),size(200,200),bgcol(156)]]

Based on the meritocratic fairness hypothesis, we expect β_1 and β_2 to be positive and statistically significantly different from zero. Similarly, given that the sum of the coefficients $\beta_1 + \beta_2 + \beta_3$ is positive and statistically significantly different from zero at conventional levels, we have evidence supporting the hypothesis *H1* above. On the other hand, if β_2 is negative or statistically insignificantly different from zero, or if $\beta_1 + \beta_2 + \beta_3$ is statistically insignificantly different from zero, we have evidence to support the inheritance entitlement hypothesis, indicating that our winners internalize inherited opportunity and, thus, redistribute less.

Additionally, we also conduct a Bayesian Hypothesis Testing (using the independent sample t-test) to explicitly check, using the Bayes factors, whether the average redistribution between each pair of the conditions is (i) statistically different from one another and (ii) the direction of the difference.[15] Subsequently, this allows us to form the ranking of the redistributions among our four treatments and verify the predictions suggested by meritocratic fairness and inheritance entitlement ideals.

Next, we look at the redistributive behaviours from the perspective of the passive beneficiaries of the transfer. In detail, we elicited the non-binding demand for redistribution stated by all non-winners in each round to test this hypothesis. After the winner was selected in each round, we asked non-winners to state how much (out of 100) they would want from the winner to redistribute. They responded to this question without learning about the actual redistributive outcome. To some extent, responses from the non-winners in our experiment represent, in a real-world comparison, a viewpoint of passive beneficiaries of inheritance taxation of its fairness. In sum, we estimated the following regression equation on the sample of non-winners:

[12] CBEE used its Facebook page to advertise the initial enrolment into the general subject pool, while NTU used a recruitment email sent to NTU students to advertise the experiment to potential participants. For this particular experiment, the recruitment email for both sites advertised for subjects to play a game titled 'Finding Numbers'. Subjects at Bangkok (Singapore) site were told to expect to receive approximate 150 THB (13.49 SGD), and could earn up to 450 THB (36 SGD) inclusive of the show-up fee.

[13] Based on the World Bank's Purchasing Parity Power conversion, the average payoff to participants in Bangkok and Singapore are 22.08 USD and 23.23 USD, respectively.

[14] In other words, the coefficients β_0, $\beta_0 + \beta_1$, and $\beta_0 + \beta_2$ are the estimated effects of the T/E, T/L and H/E treatments, respectively.

[15] Typically, researchers would commonly conduct a paired sample t-test and interpret the p-values to reject the null hypothesis. One of the advantages of conducting a Bayesian Hypothesis Testing is that it provides the Bayes factor that can support both the null and alternative hypotheses. We thank a referee for suggesting this method and also the JASP software (https://jasp-stats.org/), which we used to conduct the tests. With the Bayesian Hypothesis Testing, we conducted, for each pair, three null hypotheses: (i) the means are equal, (ii) the means of group 1 is larger than of group 2, (iii) the means of group 1 is smaller than of group 2. In detail, we conduct the test using both unconditional means and conditional means. To calculate the conditional means, we ran the estimation similar to Table 1, column 5 (with two-way tobit) and predicted the error term as the unexplained part of the redistribution. This is our conditional means of winner's redistribution in the hypothesis testing.

$$D_{i,n} = \theta_0 + \theta_1 L_i + \theta_2 H_i + \theta_3 (L_i\ H_i) + \ldots + \upsilon_{i,n} \quad (2)$$

where D_{it} represents non-winners' demand for the winner's redistribution in round n. The interpretation of θ_1, θ_2, and θ_3 is analogous to the associated coefficients in Eq. (1). We hypothesize that if non-winners follow the meritocratic fairness hypothesis (associating luck or inheritance with less entitlement), θ_1, θ_2, and θ_3 are positive and statistically significantly different from zero. As a result, this implies a higher demand for more redistribution among non-winners in luck and the heir treatments. By contrast, if non-winners allow a room for the winner to internalize their inheritance (following the inheritance entitlement hypothesis), we may expect θ_2 or/and θ_3 to be zero or even negative. Again, we include the same set of control variables as in Eq. (1).

Given that the observed range of the dependent variable is censored at 0 and 100, we estimated Eqs. (1) and (2) using a two-limit Tobit specification for the intensive margin analysis.[16] Because of the multiple-round design, we cluster the standard errors at the subject level. While our data structure resembles panel data, it is not a balanced panel because we were more likely to observe players with higher WO than those with lower WO in the winner sample. On the other hand, the non-winner sample contained more players at the lower ends of the WO.

5. Results

5.1. Main findings

To what extent is an average winner's redistribution a function of luck, effort, and inheritance? Panel A of Fig. 1. makes the first pass at this question by presenting raw data averages of winners' transfer by treatment. Here, we can see that the average winner's redistribution is the lowest for participants in the T/E group - the average winner's transfer for this group is 18.00 (out of 100). The winner's transfer is roughly the same for participants in the T/L (*mean* is 24.09) and H/E (*mean* is 24.69) groups. The average winner's transfer is highest for participants in the H/L (*mean* is 27.72) group. Supporting results from Bayesian Hypothesis Testing (see Appendix Table A.3) point that, on the one hand, we cannot reject the null hypothesis that the raw average winner's redistributions are the same across T/L, H/L, and H/E groups. On the other hand, the Bayes factors from the pairwise mean difference test between T/E and each of the other three groups indicate that we can reject the null of equal means between T/E and the other three groups. Moreover, the unconditional difference between pure effort (T/E) and luck-induced inheritance of opportunity (H/L) is pronounced and statistically significant (see Panel D of Appendix Table 3). Together with Fig. 1, they provide preliminary support for the meritocratic fairness ideal that winnings generated by own effort is treated much differently than other sources.

Moreover, when we check with the results from Bayesian Hypothesis Testing (Appendix Table A.3) for the directional mean comparison, it confirms that winners in T/E redistribute significantly less than in other conditions. With further checks, the Bayes factors from all paired t-tests point to the following ranking: $R_{T/E} < R_{T/L} \approx R_{H/E} < R_{H/L}$. These tests indicated that winners in an inherited opportunity condition (H/E and H/L) redistributed similarly to those in the luck condition (T/L). Among them, heirs who inherit luck-induced opportunity redistribute the most. In general, the raw data result provides supporting evidence for the meritocratic fairness hypothesis – from the winners' point of view.

To test whether the raw data patterns would still hold in a regression where we control for personal characteristics and other relevant variables such as ex-ante transfer, we present Eq.1′s estimates in Table 1. The dependent variable is the winner's transfer following a win (from 0 to 100). We start with the specification with basic control variables in Column 1 and end with the full specification in Column 5.[17] Looking across Columns 1–3, we can see that the *heir* (or the inheritance) coefficient is positive at 3.68 (*S.E.*=1.62) in the specifications with basic control variables. Similarly, on average, winners in the luck treatments (T/L and H/L) redistribute approximately 3.54 points of their winnings more than those in the effort treatments (T/E and H/E).

In Column 4, when we estimated the full interacted model, we can see that luck's main effect remains positive, although only marginally statistically significant at 10%. The coefficient on the luck treatment is now 4.264 (*S.E.=2.40)*, in line with the luck-effort hypothesis. The interaction term coefficient is negative at −1.289 but statistically insignificant (*S.E.=3.28*). These results confirm that participants in the H/L redistributed more of their rewards than those in the T/L, T/E, and H/E treatments. This counts as 7.227 more tokens than in the pure effort treatment; see the implied marginal effect, i.e., $\beta_1 + \beta_2 + \beta_3$. Once other variations of the experimental design are taken into account, the size of *heir, luck,* and its interactions become marginally smaller, but they are no longer statistically significant (Column 5). Nonetheless, the implied effect, i.e., $\beta_1 + \beta_2 + \beta_3$, of being in the H/L treatment is 6.398 and statistically significant at the 1% level (*S.E.=2.05*) in the full specification. In other words, the H/L dictators give away their prize approximately one-third more than those of the pure effort treatment (T/E). Again, we have strong evidence that participants in the H/L treatment redistributed substantially more than those in the T/E treatment, which is consistent with the meritocratic fairness hypothesis. However, the raw data pattern in Fig. 1 of winners in the T/E treatment transferring significantly less than those in the H/E is no longer statistically significant at conventional levels once we hold personal characteristics, ex-ante transfer, previous win, and group inequality constant. This might be because the earlier difference between T/E and H/E observed in Fig. 1 is due largely to the difference in ex-ante redistributive preference between individuals in the two conditions. The statistically insignificant *heir* coefficient in the fully interacted model is thus more in line with the inheritance entitlement hypothesis, which assumes that heirs with this ideal will internalize their randomly assigned inheritance and feel entitled to it.

Table 1′s other results show that participants with reported preferences for redistribution in the *ex-ante* elicitation stage (ANTE) redistributed more of their winning. Recall that the information on the winning status was known to our subjects. In our regressions shown in column (5), we included a control variable indicating whether the current winner had won in the previous round. We find that having won previously made the person more generous. This result differs from Cassar and Klein's (2019) finding, where individuals who previously experienced loss redistributed significantly more. Holding other things constant, there is little evidence of gender differences in redistribution following a win. We also find insignificant differences in redistribution rate across individuals with different WOs and dispersion of WOs within the group. Economic students and Singaporean participants redistributed less of their winning, on average.

Next, we look at the redistribution from the point of view of the non-winners. Here, we also want to check the extent to which inheritance entitlement may play a role in their decision to demand redistribution from the winner. Panel B of Fig. 1 shows the unconditional means of the non-winner's preferred transfer across all four treatments. Going across all columns, they are not statistically different from one another. Additional results from the paired Bayesian Hypothesis Testing confirm the general finding, with one exception (see Appendix Table A.6). The Bayes factors indicate that non-winners in H/L demanded a larger size of

[16] Quantitatively, similar results are, nevertheless, obtained using OLS; see Table A.7 in the online appendix.

[17] In Appendix Table A.4, we provide the estimations of Equation 1 without any control. Additionally, we provide the estimations with a linear regression (with basic controls) in Appendix Table A.5 for references. Both additional specifications show marginally higher effect sizes due to the assumption, when using the OLS, that there is no truncation in the data.

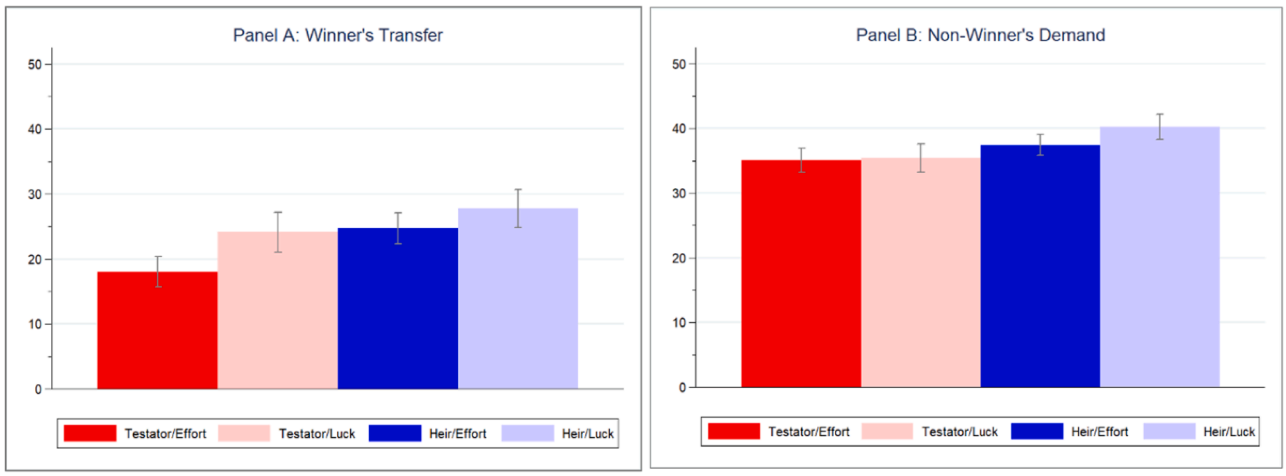

Fig. 1. Average ex-post transfers by treatment. *Note:* These are raw data, which are not regression-corrected. Standard-error bands (95% CI) are reported: two standard errors above and two below. Each column refers to each of the four treatment variations: Testator/Effort, Testator/Luck, Heir/Effort (of the testator), and Heir/Luck (of the testator), respectively.

Table 1
Winner's redistribution, luck, and inheritance of opportunity.

	(1)	(2)	(3)	(4)	(5)
Heir treatment (β_1)	3.684**		3.693**	4.253*	3.281
	[1.618]		[1.600]	[2.231]	[2.060]
Luck treatment (β_2)		3.535**	3.543**	4.264*	3.399
		[1.626]	[1.618]	[2.401]	[2.290]
Luck × Heir (β_3)				−1.289	−0.282
				[3.285]	[3.009]
The implied marginal effect					
H/L variation ($\beta_1 + \beta_2 + \beta_3$)				7.227***	6.398***
				[2.328]	[2.056]
Control variables					
Ex-ante transfer					0.278***
					[0.036]
Won in last round					3.180***
					[1.012]
WO = 4					1.743
					[2.551]
WO = 6					−0.584
					[2.437]
WO = 8					1.618
					[2.047]
Group Inequality: Middle					−0.293
					[1.324]
Group Inequality: High					0.445
					[1.851]
Female	0.912	1.177	0.839	0.833	0.983
	[1.652]	[1.658]	[1.627]	[1.627]	[1.476]
Economics major	−5.062***	−5.031***	−5.128***	−5.030***	−3.973***
	[1.585]	[1.583]	[1.568]	[1.586]	[1.456]
Singapore	−5.186***	−5.941***	−5.509***	−5.488***	−7.243***
	[1.915]	[1.948]	[1.936]	[1.946]	[1.829]
Observations	1217	1217	1217	1217	1217
Pseudo R-Sq	0.00859	0.00846	0.0101	0.0102	0.0321

Note: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Tobit regressions (censored at 0 and 100) with robust standard errors clustered at the individual level are in bracket parentheses. The dependent variable is the value the winner redistributed to other group members in each round (0–100). All specifications control for gender, age, the field of study, stated unincentivised redistribution (*ex-ante transfer*), and whether won in the previous round and experiment round (total of 10 rounds). WO is the winning opportunity that is fixed for each subject. The implied marginal effect is compared to the reference group, i.e., the Testator/Effort treatment.

redistribution than those in T/E.

We turn to Eq. (2) and investigate whether there are substantial differences in how much transfer is expected by non-winners across luck and inheritance treatments – again with a two-way tobit model.[18] In the full specification of Table 2, non-winners in the heir treatment demanded 2.02 more (*S.E.=2.22*), although it is not statistically different from zero. Similarly, we find that those in the luck treatment demand redistribution from the winner at 1.22 more (*S.E.=2.43*), although the coefficient is statistically insignificant. Nevertheless, the linear combination of the implied effect of the H/L treatment is sizable and statistically meaningful at 4.59 tokens (out of 100). This is consistent with the Bayes factor we discussed earlier. Being in a luck-induced inheritance scenario

[18] We provide the estimations with a linear regression in Appendix Table A.7 for references.

Table 2
Non-winners' preferred redistribution from winners.

	(1)	(2)	(3)	(4)	(5)
Heir treatment (β_1)	2.431		2.416	1.903	2.023
	[1.767]		[1.769]	[2.278]	[2.225]
Luck treatment (β_2)		1.67	1.648	0.948	1.221
		[1.744]	[1.741]	[2.594]	[2.430]
Luck × Heir (β_3)				1.2	1.352
				[3.466]	[3.257]
The implied marginal effect					
H/L variation ($\beta_1 + \beta_2 + \beta_3$)				4.052*	4.596**
				[2.39]	[2.277]
Control variables					
Ex-ante transfer					0.288***
					[0.042]
Won in the last round					−1.624
					[0.996]
WO = 4					0.992
					[2.388]
WO = 6					−3.436
					[2.532]
WO = 8					0.803
					[2.324]
Group Inequality: Middle					2.316**
					[1.179]
Group Inequality: High					0.501
					[1.674]
Female	1.083	1.228	1.046	1.033	0.175
	[1.737]	[1.724]	[1.735]	[1.735]	[1.649]
Economics major	−2.884*	−2.794*	−2.832*	−2.881*	−2.479
	[1.647]	[1.650]	[1.646]	[1.643]	[1.531]
Singapore Dummy	−3.294	−3.713*	−3.378	−3.373	−5.807***
	[2.064]	[2.023]	[2.072]	[2.071]	[2.063]
Observations	3544	3544	3544	3544	3544
Pseudo R-Sq	0.00189	0.00171	0.00205	0.00207	0.0134

Note: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Tobit regressions (censored at 0 and 100) with robust standard errors clustered at the individual level are in bracket parentheses. The dependent variable is the value each non-winner demanded as a redistribution from the winner in each round (0–100). The implied marginal effect is compared to the reference group, i.e., the Testator/Effort treatment. See Table 1 for details.

leads non-winners to demand more than in a pure effort condition (approximately 10 pp higher). We interpret this result as supporting evidence for the meritocratic fairness hypothesis. In other words, we have evidence that the passive recipients of the transfers do not view the winners in the H/L as truly deserving of their prize.

Table 2′s other results reveal that a higher *ex-ante* preference for redistribution increases demand for redistribution from the dictator. What this means is that fairness preferences correlate positively with higher redistribution (Table 1) and play a similar role among people who expect to receive the transfer. Economic students and subjects from Singapore demanded less from the winners, which suggests that they perceive that winners deserve to keep what they had 'earned.' In sum, Table 2′s main results suggest little treatment difference in non-winners perceived entitlement to the winner's prize.

5.2. Heterogeneous effects

Assuming that preferences for fairness are important determinants of the redistributive decision (Almås et al., 2020), Table 3; Rawls, 1971 explores whether the results of winner's redistribution across luck and inheritance treatments vary significantly across people with *ex-ante* fairness preferences (*ANTE*), which was not incentivised.

Our prior is that those who redistribute their reward more in the non-incentivised setting would also be more likely to subscribe to the meritocratic fairness view when redistributing their inheritance. Indeed, the scatter plot in Fig. 2 panel A demonstrates that the winner's actual transfers positively correlate with the stated *ANTE*. Therefore, we split our sample in this dimension to check for any differences in the degree of inheritance entitlement between participants with higher and lower fairness preferences. In detail, we classify our subjects as high *ANTE* if their redistributive preference is at least at the sample median or above and low *ANTE* otherwise.[19]

In columns 1 and 2, we repeat the specification in Eq. (1). The main effect of luck is positive and statistically different from zero only among the low *ANTE* sub-sample, at 4.369 additional tokens. This is much larger than that of the high *ANTE* sub-sample. This is approximately three times the size of the effect we find for the full sample. By contrast, the effect of inheritance is similar at 2.7, albeit imprecisely estimated, for both low and high *ANTE* sub-samples. We also find that the amount transferred by winners increased with the stated amount of the *ANTE* transfer. Nevertheless, we know from our previous result in Table 1 that the amount transferred after knowing they win would still be less than the amount they wished to transfer ex-ante.

In addition, the interactive effect of inheritance and luck appears to be negative among low *ANTE but* positive among high *ANTE* (even though these are not statistically significant). Consequently, the implied effect, i.e., $\beta_1 + \beta_2 + \beta_3$, of the H/L variation (i.e., the difference away from the redistribution by winners in the T/E treatment) is at 5.24 and 7.09 for the low and high *ANTE* winners, respectively. This result implies that dictators who would give away more in an unincentivised setting are more inclined to the meritocratic ideal than the inheritance entitlement ideal.

Next, we focus on the heterogeneous effect of luck and inheritance treatment on the non-winners' demand for redistribution (Table 3, columns 3 and 4). While we do not observe significant effects from each separate treatment coefficient, the effect of being non-winners under the H/L treatment is large and significant (13.93) for the high *ANTE* non-

[19] On average, winners across all four treatments shared a common value of *ANTE* (at approximately 40 out of 100 tokens). Note also that, in Figure 2.B, the ex-post transfers rarely exceeded the ex-ante stated values (with most observations appearing in the area to the right of the 45-degree line).

Table 3
Winners' redistribution and non-winner's preferred redistribution: by preferences for inequality at the unincentivised stage (*ANTE*).

Dependent variables:	Winner's transfer		Non-winner's demand	
	Low ANTE	High ANTE	Low ANTE	High ANTE
Heir treatment (β_1)	2.771	2.72	−0.699	7.835
	[2.064]	[3.888]	[5.020]	[4.947]
Luck treatment (β_2)	4.639**	−0.469	−4.229	9.582
	[2.363]	[4.344]	[4.886]	[6.124]
Luck × Heir (β_3)	−2.173	4.84	8.673	−3.483
	[3.134]	[5.519]	[7.076]	[7.779]
The implied marginal effect				
H/L variation ($\beta_1 + \beta_2 + \beta_3$)	5.237**	7.091*	3.745	13.93***
	[1.975]	[3.899]	[5.328]	[5.256]
Control variables				
Ex-ante transfer	0.345***	0.409***	0.601***	0.168
	[0.048]	[0.135]	[0.142]	[0.193]
Won in the last round	2.082*	5.310***	−0.595	−4.917**
	[1.067]	[1.982]	[2.173]	[2.272]
WO = 4	−1.118	4.144	5.955	−3.585
	[2.622]	[4.938]	[5.689]	[5.028]
WO = 6	−2.531	2.28	−3.847	−6.762
	[2.520]	[4.303]	[6.100]	[5.082]
WO = 8	0.602	0.763	5.532	−4.176
	[2.200]	[3.600]	[5.325]	[5.255]
Group Inequality: Middle	0.315	−1.79	3.072	4.277
	[1.464]	[2.204]	[2.388]	[2.921]
Group Inequality: High	−1.628	3.775	−0.587	2.442
	[1.946]	[3.360]	[3.745]	[3.817]
Female	2.234	−1.612	−0.88	0.561
	[1.543]	[2.784]	[3.322]	[4.178]
Economics major	−3.482**	−5.493**	−3.422	−4.365
	[1.581]	[2.708]	[3.447]	[3.593]
Singapore	−4.609**	−10.197***	−11.345**	−6.661
	[1.982]	[3.093]	[5.238]	[4.510]
Observations	667	550	1939	1605
	0.0395	0.0249	0.0121	0.00694

Note: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Tobit regressions (censored at 0 and 100) with robust standard errors clustered at the individual level are in bracket parentheses. In columns 1 and 2, the dependent variable is the value the winner redistributed to other group members in each round (0–100). In columns 3 and 4, the dependent variable is the value each non-winner demanded as a redistribution from the winner in each round (0–100). See Table 1 for more details. The implied marginal effect is compared to the reference group, i.e., the Testator/Effort treatment.

winners. In contrast, the effect is small and insignificantly different from zero among the low *ANTE* non-winners. Therefore, we observe a much stronger effect due to meritocratic fairness consideration, as opposed to the inheritance entitlement, in demand for redistribution of those who are generally highly averse to unfairness.

5.3. Sentiment towards redistributive outcomes

Finally, digging deeper into the limited role of the perception of entitlement on the non-winners' demand for redistribution, Table 4 estimates with linear regressions of the treatment effects on satisfaction with the final transfer reported by non-winners in the final round (standardised with mean 0 and standard deviation 1). We interpret positive and statistically significant values of θ_1, θ_2, and θ_3 as an indicator of the non-winner's empathy towards the winner's entitlement to the reward. Columns 1 and 2 estimate the full sample of non-winners in round 10. The sole effect of luck treatment is 0.23 (*S.E.=0.09*) in the baseline specification without the luck-inheritance interaction. In the full specification (column 2), all θ_1, θ_2, and θ_3 have positive signs but without statistical significance, whereas the interaction term almost absorbs the effect of sole luck. Overall, the implied effect of H/L on non-winners' satisfaction is around 0.34 sd. larger than the one in other treatments.

The sub-sample analysis between non-winners with low and high fairness preferences reveals that the effect of H/L on satisfaction with the amount transferred among high *ANTE* is much larger in magnitude (at 0.66 sd.) (column 4). In contrast, there is no difference across treatments regarding satisfaction among non-winners with low fairness preferences (column 4). Overall, the results in Tables 3 and 4 reject our prior hypothesis that non-winners in luck and inheritance treatments - particularly individuals with strong inequality aversion - would be less empathetic towards the winner's reward and subsequently would have demanded higher transfers and feel less satisfied with the outcome than other treatments. This evidence is consistent with the inheritance entitlement hypothesis.

Interestingly, in all regression results in Table 4, none of the WO variables is statistically significant. In particular, those who had high WO but did not win did not feel less satisfied with the final transfer from the winners than those with low WO. They might expect to win given their high WO, and in such a circumstance, disappointment would usually lead to dissatisfaction and bitter feelings towards the winners. This is not the case, however. It could be because they were aware that having a high WO due to their effort, luck, or inheritance does not guarantee winning, so they perceive these various methods of generating the WO as virtually beyond their control. Hence, there was no reason to be upset that something that is determined by luck could be the explanation for the insignificant WO variables.

6. Discussions and concluding remarks

This paper experimentally investigates whether the transmission of economic opportunity from one stranger to another is viewed more as luck or effort. We find evidence that, on average, redistribution was highest among the *heir* participants whose winning opportunity was determined purely by luck in the first generation. For the heir participants whose winning opportunity was determined purely by the effort of their testators, their redistributive decisions are statistically the same as those under a straightforward effort treatment. In contrast, there is little

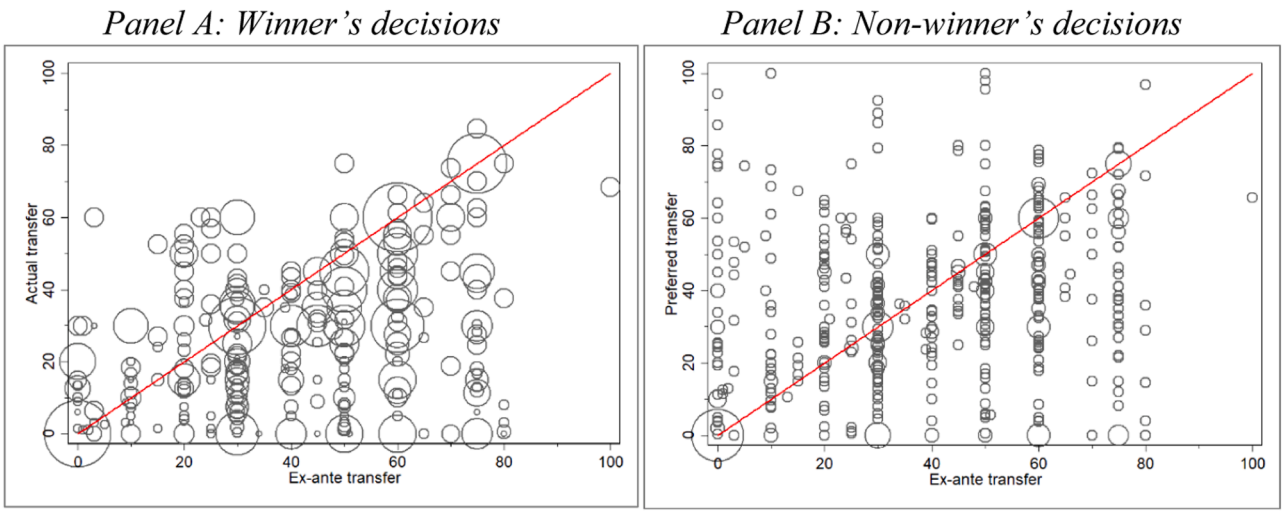

Fig. 2. Scatter plots of ex-ante and ex-post transfer decisions. *Note:* These are raw data. The sizes of the circle plots reflect the number of observations. The 45-degree line (the red line) indicates where the ex-ante transfer value (stated redistributive preference in a spectator setting) is exactly equal to the ex-post transfers (actual transfer by the winners in Panel A and the preferred transfer from the winner in Panel B).

Table 4
Satisfaction with the final transfer (responded by non-winners in the final round).

	Full sample		Low ex-ante	High ex-ante
	(1)	(2)	(3)	(4)
Heir treatment (β_1)	0.112	0.106	0.053	0.25
	[0.099]	[0.132]	[0.195]	[0.189]
Luck treatment (β_2)	0.237**	0.229	0.308	0.249
	[0.098]	[0.151]	[0.230]	[0.192]
Luck × Heir (β_3)		0.014	−0.139	0.161
		[0.197]	[0.288]	[0.267]
The implied marginal effect				
H/L variation ($\beta_1 + \beta_2 + \beta_3$)		0.349*	0.223	0.66***
		[0.142]	[0.208]	[0.196]
Control variables				
Ex-ante transfer	0.002	0.002	−0.007	−0.003
	[0.002]	[0.002]	[0.005]	[0.006]
Won last round	0.089	0.089	0.124	0.088
	[0.123]	[0.123]	[0.198]	[0.154]
Transfer Gap: Received - Request	0.010***	0.010***	0.008***	0.012***
	[0.001]	[0.001]	[0.002]	[0.001]
WO = 4	−0.229	−0.229	−0.224	−0.242
	[0.172]	[0.172]	[0.248]	[0.247]
WO = 6	−0.182	−0.182	−0.346	0.022
	[0.173]	[0.173]	[0.262]	[0.235]
WO = 8	−0.05	−0.05	−0.02	−0.084
	[0.158]	[0.159]	[0.208]	[0.234]
Group Inequality: Middle	−0.134	−0.134	−0.168	−0.068
	[0.131]	[0.131]	[0.193]	[0.186]
Group Inequality: High	−0.169	−0.169	−0.359	0.146
	[0.195]	[0.195]	[0.290]	[0.273]
Singapore	−0.346***	−0.346***	−0.173	−0.401***
	[0.106]	[0.106]	[0.163]	[0.145]
Observations	355	355	200	155
R-Squared	0.224	0.224	0.174	0.390

Note: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Linear regressions with robust standard errors. The sample is all non-winners in the final round (10). Transfer Gap is the difference between the actual transfer received and the amount the non-winner preferred to receive as a group. See Table 1 for more details.

evidence that non-winners hold significantly different perceptions regarding the winner's entitlement to their winning across treatments. Nevertheless, non-winners in luck and inheritance are more satisfied with the final redistribution than others, perhaps because the average transfer is notably higher in these groups.

Existing studies have found that personal experiences shape people's perception of how inequality originated in their society. The current study contributes to this research area by showing the salience of how bequests and inheritance were generated plays a crucial role in explaining the heterogeneous support for redistributive initiatives. As people have their way of rationalizing a classic question of whether a birth lottery is an acceptable inequality of opportunity, they also have their own beliefs when judging the fairness of inheritance. We contribute to this debate by providing experimental evidence showing that individuals feel less entitled to bequests and inheritance when the randomness of inheritance is salient to them, particularly under a scenario of limited information (Cappelen, Falch & Tungodden, 2020; Rabin, 1998).

Like all studies in social sciences, ours also has limitations. One main concern is the external validity of our findings. Given that participants in our experiment are undergraduate students in Thailand and Singapore, it remains to be seen whether the results using samples taken from the general public can be replicated. And since culture is known to play a deterministic role in shaping redistributive preferences (Alesina & Giuliano, 2015, Almås et al., 2020, 2022; Campos-Vazquez, Krozer, Ramírez-Álvarez, de la Torre & Velez-Grajales, 2022), even if our current design had incorporated participants from two neighbouring Asian countries, more work is needed in this dimension. In addition, under a framework of developing countries, one could incorporate land ownership, a key component of bequests and household wealth (e.g., Genicot & Hernandez-de-Benito, 2022; Mendola & Simtowe, 2015), into an alternative design to get closer to a realistic scenario.

Moreover, our current design to study the role of entitlement regarding inheritance is silent on the active role of testators in the redistributive decision of the heir. Cherry, Frykblom and Shogren (2002) show that dictators with earned wealth become more self-interested in a dictator game – implying that testators could be less willing to redistribute their bequest to an unrelated party. A recent work by Stantcheva (2021) points out that even without direct interference from the testator, the heir could internalize the testator's preference, putting a higher welfare weight on the testator's welfare, and therefore they would redistribute less. If this is the case in our design, the effect of inheritance we find here is the lower bound of the alternative scenario where we can completely rule out the welfare weight. In reverse, since we do not have the pairing of people who know each other in real life, the sense of entitlement from the artificial relationship may be lower. Therefore, our results pick up the upper-bound effect due to the inheritance of opportunity.[20]

Lastly, additional works could test whether the role of entitlement in the inheritance of opportunity also extends to the redistributive design under the spectator setting (Freyer & Günther, 2022). As shown in the literature, when self-interest is removed, we could anticipate higher redistribution (Almås et al., 2020; Müller & Renes, 2021). We learn from our design that stakeholder dictators in our game redistribute more, on average, when they have a higher ex-ante stated preference for redistribution.

In summary, our findings point out that the inheritance of opportunity is generally viewed, in our case, by student subjects making real but low stake decisions as effort-induced unless it is explicitly made clear that the inheritance was driven purely by luck and not effort. This is consistent with a recent finding by Bastani and Waldenstrom (2021), who study the attitude toward inheritance taxation among a representative adult population in a no-stake vignette-style survey. More broadly, it provides new evidence of how beliefs about inequality sources determine people's willingness to support taxation and other social welfare initiatives. It also explains why there has been growing opposition to inheritance and estate taxes in many countries (for instance, India, Norway, Australia, and Sweden) and how we might be able to shift people's attitudes towards inheritance tax simply by making the luck element much more salient to the general population. Perhaps it is worth noting that in Singapore and Thailand where our study is conducted the inheritance tax is limited and generally is small in magnitude unlike in those countries where inheritance taxes are mor prominent. The absence of significant inheritance tax in Thailand and Singapore could possibly make the sense of entitlement of our participants towards the inheritance particularly strong and more prevalent among our participants.

[20] For instance, Gross et. al. (2017) shows that, in a family context, the size of estate taxation is decreasing with an increase in familial relationship between the testator and the heir. Moreover, results from the literature on the impact of social distance on distributional decision making have shown that social connectedness increase generosity in pro-social decisions (see, for instance, Leider et al 2009, Charness and Gneezy 2008, Robson 2021). For this reason, we can suspect that the stronger the relationship (even more towards being from the same family), the higher the entitlement towards inheritance.

Declarations of interest

none

Data Availability

Data will be made available on request.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.socec.2023.102078.

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